CSCI 654 Team Research Investigation
Network Investors - Stock Market Analytics

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Stock Movement Prediction with Historical Data

1. Collect the Daily stock price based on the 20 years of historical data.
2. SMA and EMA technical indicator Calculation.
3. Find performance ratio for each NYSE stocks and general mark trend.
4. Analyze technical indicators of each company using Relative Strength Index and Stochastic Oscillator.
   a. Measures speed and change of price movement.
   b. Determines if overbought or oversold.
Sequential Program

For each stock:

Read in Text dataset to Java Object

Calculate the SMA/EMA/RSI/SO based on stock daily price.

Apply the Bayes Equation to predict the increase stock price probability given that SMA and EMA are increased.
Parallel Program

Parallel For each stock:

- Read in Text dataset to Java Object
- Calculate the SMA/EMA/RSI/SO based on stock daily price.
- Apply the Bays Equation to predict the increase stock price probability given that SMA and EMA are increased
Predicting stock price movement using machine learning

1. Evaluate the equity future price over the long time.
   a. Determine stocks that will rise over 2% in a period of x number of days
   b. Predict the movement of the stock price, as well as the ratio of the movement over certain fixed amount of time.

2. DataSet preprocessing.
   a. Retrieve historical financial indicators from each company.

   a. Comparing financial indicator data value between two consecutive years for a particular stock.
   b. If the current year stock price is 10% higher than the previous, label data point for a specific financial indicator as "Good", otherwise as "Bad".
   c. Find the probability of both good and bad data using Naïve Bayes Classifier.
   d. Compare the good and bad probability to determine the stock price movement.

End of the Slides

Any Questions?